

qdm 4
Please replace the paragraph beginning at page 3, line 11, with the following rewritten paragraph:

AD
Each vane 17 extends axially and circumferentially from the hub. Each vane 17 is a shaped blade member having the inner end portion 18 secured to the hub 15, and extending radially and circumferentially from the hub to an outer axial end edge. The adjacent vanes 17 extend from the hub 15 and form with the base 3 and shroud 16, a flow passageway 20 to outlet passageway 13. The top edge 19 of each vane is connected to the corresponding edges 19 of all other vanes 17 by the shroud 16, which is inclined to direct the water to flow downwardly and peripherally into passageways 20, 13 and outlet opening 14.

IN THE CLAIMS:

Please amend claims 1, 4, 9-10 and 13-14 as follows:

AB
1. (amended) A water pump impeller for a cooling water pump unit including a housing defining a water chamber having a water inlet and a water outlet and having an impeller shaft in a seal/bearing unit mounted within the housing and configured to receive the water pump impeller connected to said impeller shaft within said water chamber, the
5 improvement wherein said water pump impeller comprises a hub configured and constructed to be secured to said drive shaft and located within said water chamber, said hub having an outer peripheral wall extending from an innermost end of the hub axially and radially to a substantially flat bottom wall with the outer end of the hub spaced substantially from said water outlet;

10 a plurality of circumferentially spaced pump vanes secured in circumferentially spaced relation to the outer peripheral wall of said hub and extending outwardly of said hub into close spaced relation to said water outlet, each said pump vane extending radially outwardly from said bottom wall; and

15 a shroud secured to the upper and radially outlet edges of said vane extending outwardly beyond said hub into close spaced relation with said water outlet with said

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adjacent vanes defining flow passageways to the outlet passageway of the housing wall adjacent said bottom wall, said shroud having a radially inner end portion overlying a radially outer portion of said hub to form an entrance portion of said flow passageway.

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5 4. (amended) A water pump impeller for a cooling water pump unit having a cooling chamber defined by a housing and having a drive shaft rotatably mounted to said housing and projecting into said chamber, said housing having water inlet to said chamber and an outlet passageway from said chamber, said water pump impeller comprising a hub
10 configured and constructed to be secured to said shaft within said chamber, said hub having an outer peripheral wall extending from an innermost portion of the hub axially and radially to a substantially flat bottom wall, a plurality of circumferentially spaced pump vanes secured in circumferentially spaced relation to the outer peripheral wall of said hub and extending outwardly of said hub, said pump vanes extending radially outwardly from said
15 bottom wall and including a vane portion beneath the hub, and a shroud secured to the upper edges of said vane in spaced relation to said shaft and extending outwardly from said hub with said adjacent vane defining flow passageways to the outlet passageway of the housing, said hub and vanes being constructed and configured to direct a portion of the water in said flow passageways into the space between said bottom wall of the hub and the housing wall adjacent said bottom wall to direct water into engagement with the seal/bearing unit.

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5 9. (amended) The water pump impeller of claim 4 wherein said housing includes an encircling side wall for enclosing the outer radial portions of said impeller, said outlet passageway of said housing constructed and configured as a circumferential water passageway terminating in an outlet immediately adjacent to the peripheral portion of said impeller for movement of water from the housing into said circumferential water passageway of the housing.

10. (amended) The water pump impeller of claim 4 wherein the radially outer wall of said hub has a radially inner relatively constant diameter portion connected by a concave radial planar portion to a bottom edge portion, said bottom edge portion having a reverse convex curvature terminating in a flat bottom wall of said hub, said construction promoting the flow of a portion of the water in the flow passageway into said spaced between said bottom wall of the hub and the adjacent housing wall.

13. (amended) In combination, a cooling housing configured and constructed for interconnection to an internal combustion engine having a water inlet and a water outlet for connection to the engine cooling system, said water outlet being connected to a circumferential outlet passageway adjacent an outer wall of said housing, said housing having a cover having an open end and a base,

said base having a base wall with a shaft opening, said base being secured to the open end of said cover to close said chamber, a shaft rotatably mounted within said shaft opening, said base wall and including an outer exposed drive shaft connection and an inner shaft portion, said base wall having an encircling cavity about said shaft opening, a bearing and seal unit mounted within said shaft opening and projecting inwardly of said base within said cavity,

an impeller secured to the end of said shaft within said housing, said impeller having a hub secured to said shaft, said hub having a substantially concave circumferential surface, a plurality of circumferentially spaced and like vanes secured to said hub and having a radially inner portion connected to said concave circumferential surface and extending radially outwardly and circumferentially therefrom, each of said vanes projecting axially downwardly beneath said bottom wall of said hub and having an inner portion terminating in close spaced relation to said cavity, said vanes terminating in spaced relation to said outlet passageway, a shroud connected to the top outer edges of said vanes and defining circumferentially spaced flow passageways from said chamber to said circumferential outlet passageway whereby rotation of said impeller draws water through said cover and discharges the same into said outlet passageway with a portion of the water flow being directed by said vanes and said hub about the outer edge of said hub and into and through said cavity and thereby cooling of said bearing and seal unit.

14. (amended) The combination of claim 13 wherein the radially outer edge of said hub is a substantially convex wall terminating in the bottom wall of said hub, said bottom wall being a substantially planar radial wall, the base having a flat upper wall opposing said hub bottom wall, said cavity being formed in said flat upper wall and including a radial portion immediately adjacent said bearing and seal unit and an inclined outwardly extended outer wall extending from said radial portion to said flat bottom wall of said base, said vanes projecting below said bottom wall of the hub and extending radially inwardly to a distance substantially corresponding to the location of said inclined wall.
